

From: Abelson, Jeffrey [Jeff.Abelson@Donaldson.com]
Sent: Thursday, January 17, 2008 11:28 AM
To: Hanks, Katie P.
Subject: FW: Request for general information on baghouse costs

Follow Up Flag: Follow up
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Dear Katie,

Please see a response from one of our most respected Senior Application Engineers.

If you have further questions after reading this, please let me know.

Sincerely,

Jeff Abelson
IAF Manager of Technical Services
Donaldson Company, Inc MS371
9250 West Bloomington Freeway
Minneapolis, MN 55431
952-887-3847
jeff.abelson@donaldson.com (new email address)

From: Anderson, Joseph M.
Sent: Thursday, January 17, 2008 10:21 AM
To: Abelson, Jeffrey
Subject: RE: Request for general information on baghouse costs

Good morning Jeffery.

I have reviewed the request and am somewhat confounded by the perception of baghouse design and efficiency.

The simple answer to Katie's question would be, No there is no difference in cost for a baghouse designed to meet various efficiencies.

Using Katie's examples let's look at this way.

- a. The process requires 15,000 cfm to provide adequate face velocity at the hoods. This is a given.
- b. Grain load is 5.6 grains per cfm and we'll assume crushed limestone. (mildly abrasive)
- c. Particulate size = 5 micron average.
- d. Total load to the collector in grains / minute = 84,000 grains.

The particle size of 5 micron average is going to drive the air to media ratio or at least it should to achieve a reasonable stabilized pressure drop. A proper air to media selection will allow for surface retention of the particulate and reduce depth loading of the media. In this example let's assume 6 to 1 or 15,000 divided by 6 = 2,500 sq.ft of media which now becomes one of the primary considerations of the design.

The majority of bags for the market regardless of weight will achieve an efficiency of 99.9% at 1 micron. So, 84,000 grains per minute with 99.9% retained or stopped by the media leaves 84 grains per minute passing the fan or 84 grains divided by 15,000 = .005 grains per cfm.

The only way .005 could be affected would be to install a more or less efficient media. Doing this could affect the cost of the system as a whole I guess, but why would one want to do so.

I hope this helps Katie, but if she has further questions and I can be of assistance let me know.

Regards,

Joe.

Joseph Anderson
Senior Applications Engineer
Donaldson Co, Inc.

From: Abelson, Jeffrey
Sent: Tuesday, January 08, 2008 2:04 PM
To: Anderson, Joseph M.
Subject: FW: Request for general information on baghouse costs

Joe – here is the email. Let's discuss first so we can come up with a good response together. I had a long conversation with her and want to let you know what I tried to say on the phone.

Thanks!

Sincerely,

Jeff Abelson
IAF Manager of Technical Services
Donaldson Company, Inc MS371
9250 West Bloomington Freeway
Minneapolis, MN 55431
952-887-3847
jeff.abelson@donaldson.com (new email address)

From: Hanks, Katie P. [mailto:kphanks@rti.org]
Sent: Tuesday, January 08, 2008 11:28 AM
To: Abelson, Jeffrey
Subject: Request for general information on baghouse costs

Mr. Abelson,

As we discussed on the phone, I am sending you some generalized baghouse inlet parameters typical of non-metallic mineral processing plant equipment. What we are interested in understanding for purposes of EPA's review of the current new source performance standards (NSPS) if there would be differences in capital or operating costs associated with a baghouse designed to meet 0.022 gr/dscf versus a baghouse designed to meet 0.01 gr/dscf. Below are some prototype baghouse parameters (typical of the affected industries) that can be used.

Baghouse controls multiple non-metallic mineral processing processes such as crushers, grinders, screens, and transfer points.

The baghouse would be installed on new process equipment.

15,000 acfm at ambient temperature and moisture

Inlet particle loading of 5.6 gr/dscf

Outlet particle loading of 0.01 gr/dscf (or 0.022 gr/dscf)

Median particle size of 5 um

Baghouse located outdoors

Method 5 testing

Reasonable assumptions for other design parameters will suffice (provided that the same assumptions are made for both the 0.01 gr/dscf and 0.022 gr/dscf scenario). Please let me know if you have any questions. Thanks for your help.

Katie Hanks
RTI International
3040 Cornwallis Road (800Pk-C314)
Research Triangle Park, NC 27709
(919) 316-3732
(919) 541-7155 (fax)